

4.31 SWMU #31 - Container Storage Outside Process Areas (Photo 31)

4.31.1 Information Summary

Unit Description: This unit is an outdoor concrete floored container storage area located south of the autoclave unit. This above-ground unit is approximately 20 feet long and 20 feet wide. This area is use as a temporary storage area for containers prior to off-site disposal. This unit receives waste from the Tote Bins at Autoclave Units (SWMU #17), Tote Bins at Ester Kettle Unit IB (SWMU #18), Waste Storage Area at Glass Lined Unit (SWMU #19) and Tote Bins at Finished Compound Blending Unit (SWMU #21). This unit is located on concrete pad.

Dates of Operation: This unit began operation in 1962 and is currently active (Ref. 35).

Wastes Managed: This area is used as a temporary storage area for containers containing waste products from the autoclave unit, ester kettle, glass lined unit and the finished compound blending unit (Ref. 35).

Release Controls: This unit is located on a concrete pad. (Ref. 35).

History of Releases: No known releases have occurred from this unit and no visual evidence of releases from the unit was noted during the VSI conducted on August 29, 1991.

4.31.2 Release Potential

Soil/Groundwater: The potential for release of hazardous waste or hazardous constituents to soil and groundwater, both past and ongoing, is low due to the unit's location on a concrete pad.

Surface Water: The potential for release of hazardous waste or hazardous constituents to surface water, both past and ongoing, is low due to the unit's location on a concrete pad.

Air: The potential for release of hazardous waste or hazardous constituents to air, both past and ongoing, is low because the drums are closed.

Subsurface Gas: There is no potential for the generation of subsurface gas, both past and ongoing, due to the nature of the wastes managed.

5.0 AREAS OF CONCERN

This section of the RFA Report identifies the one area of concern that was observed at the CC&P facility during the VSI conducted on August 29, 1991.

5.1 Tank Truck Loading and Unloading Area

The Tank Truck Loading and Unloading Area (AOC #1) consists of several separate areas associated with the tank storage areas where tank trucks load and unload products and raw materials. During the VSI conducted on August 29, 1991 one of these areas was observed. The materials are transferred by hose and manifolds. The material transferred are raw material and products used in the process including aldehydes, esters and resins. This unit is located on a concrete pad.

6.0 RELEASE PATHWAYS

This section provides an overview of the potential for release of hazardous waste and hazardous constituents to all environmental media at the Magna/Chardonol/CC&P Facility. Determination of release potential is based on consideration of waste and unit characteristics, and environmental setting.

6.1 Air Release Pathway

The CC&P Facility produces polyester resin products for specialty chemicals for the oil and other chemical industries. During the process vapors are collected and sent to wet caustic scrubbers or returned to the process. Wastewater, however, is sent to the WWTF Enclosed Tank #1 and #2 (SWMUs #11 and #12) and then to the Treatment Pits (SWMU #8) where it is agitated and mixed with alum and caustic solutions to precipitate the organics in the wastewater. These Treatment Pits (SWMU #8) are open to the air. The potential for releases to air from the Treatment Pits (SWMU #8) is moderate due to the potential for mist or organic emissions (including volatile organic compounds).

The following process units are covered under separate Texas Air Control Board permit: high temperature reactor permit no. C-7856, autoclave permit no. R-2618 A, 4000 gallon reactor X-11874A, glass-lined unit C-7856 A. Other air permits included in the Chardonol Part A are C-7028, R-6274 (Ref. 15).

6.2 Soil Pathway

The present potential for releases of hazardous waste and hazardous constituents to the soil pathway from closed Wastewater Impoundment (SWMU #1), and Black Tar Area (SWMU #2) is low because all the wastes and contaminated soil were removed until the remaining soil results were less than background levels (Ref. 3). The Old Bone Yard (SWMU #24), a landfill that received non-hazardous waste was also removed although it appears that no soil analysis was done to confirm that no contamination remained.

The rest of the facility is either concrete lined, covered with asphalt, contains secondary containment, and/or has a run-off collection system. The potential for release of hazardous waste or hazardous constituents to soil is low. This low release potential is based on overall site operation observed during the VSI conducted on August 29, 1991.

6.3 Groundwater Pathway

There is one documented release of hazardous waste or constituents to the groundwater. This is based on the samples collected for a CME by TWC in 1987 which show the presence of barium, acid esters, butyl myristate, 2-H-azepine-2-one, triethyl

phosphate, hexadecanoic acid and nonyl phenol (Ref. 20). These wells were constructed to detect contamination from Wastewater Impoundment (SWMU #1).

In addition, the Black Tar Area (SWMU #2) was a land based unit with no release controls and therefore would have a moderate release potential to groundwater. Similarly, the Old Bone Yard (SWMU #24), which was a landfill with no release controls, would also have a moderate release potential to groundwater.

6.4 Surface Water Pathway

Releases to surface water from operations at the CC&P facility would generally be expected to occur as a result of overland transport. However, most of the site is curbed and the water goes to the storm sewer which has a valve to allow for testing prior to discharge to the county ditch or to storage tanks to be treated in the Treatment Pits (SWMU #8).

6.5 Subsurface Gas Generation

The primary constituent of concern in subsurface gas is methane, due to its explosive properties. Methane is generated primarily from the anaerobic biodegradation of organic matter released to the subsurface. Due to the removal of all biodegradable materials managed at the closed Wastewater Impoundment (SWMU #1) and Black Tar Area (SWMU #2), subsurface methane generation is not expected to be a significant problem. For this reason, there is no potential for subsurface gas generation at the CC&P facility.

7.0 CONCLUSIONS AND RECOMMENDATIONS

This section identifies suggested further actions for the AOC and each SWMU identified during the VSI conducted on August 29, 1991 and presented in Sections 4.0 and 5.0.

7.1 AREAS OF CONCERN (AOC)

AOC #1 - Tank Truck Loading/Unloading Area

Suggested Action: No RFI is recommended, however, it is recommended that the facility make an inventory of all the loading and unloading areas.

Reason: The unit has no known history of release, a low release potential and is a concrete pad.

7.2 SOLID WASTE MANAGEMENT UNITS (SWMUs)

SWMU #1 - Wastewater Impoundment

Suggested Action: RFI is recommended.

Reason: This unit had a possible release prior to 1987, limited soils testing at closure indicates xylene, toluene and mercury are present, a shallow water table is present, contaminants detected in groundwater at low ppb concentrations.

SWMU #2 - Black Tar Area

Suggested Action: RFI is recommended.

Reason: There was confirmed soil contamination at this unit prior to its removal in 1985.

SWMU #3 - Wastewater Collection Sump

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential and is located on a concrete floor surrounded by a bermed concrete pad. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #4 - Skimmed Oil Storage Tank

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential, is inactive and is located on a bermed concrete pad. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #5 - Old Drum Storage Area at WWTF

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential, is inactive, and was located on a curbed concrete pad. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #6 - Dumpster for Filter Press Cake

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential, is located on a curbed concrete pad, and manages non-hazardous wastewater. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #7 - Wastewater Holding Tank

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential, is located on a curbed concrete pad, and manages non-hazardous wastewater. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #8 - Treatment Pits

Suggested Action: RFI is recommended.

Reason: This unit contains non-hazardous wastes in open-topped concrete pits. Sampling needs to be done to characterize any air releases.

SWMU #9 - Sludge Dewatering Belt Press

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential and the sludges are classified as non-hazardous. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #10 - WWTF Piping/Chemical Sewer Conduits

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential and the drain lines are concrete lined. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #11 - WWTF Enclosed Steel Tank #1

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential, and is located above-ground on an earthen dike. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #12 - WWTF Enclosed Steel Tank #2

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential, and is located above-ground on an earthen dike. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #13 - T-1011 Storage Tank

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential, and is located above-ground on a concrete floor surrounded by a concrete dike. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #14 - Waste Storage Area in Laboratory

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential, and is located on a concrete floor inside a building. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #15 - Waste Storage Area in Maintenance Shop

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential, and is located on a concrete floor inside a building. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #16 - Container Storage Outside Maintenance Shop

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, has a low release potential and is situated on a concrete pad. No visual

evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #17 - Tote Bins at Autoclave Units

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential, and is located on a concrete floor inside a building. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #18 - Tote Bins at Ester Kettle Unit 1B

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential, and is located on a concrete floor inside a building. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #19 - Waste Storage Area at Glass Lined Unit

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential, and is located on a concrete floor inside a building. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #20 - Dumpsters at Glass Lined Unit

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential, and is located on a concrete pad. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #21 - Tote Bins at Finished Compound Blending Unit

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential and is located on a concrete floor inside a building. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #22 - Metal Catch Trays at Tank Car Railside

Suggested Action: RFI is recommended.

Reason: There has been no confirmed release from this unit. However, during the VSI conducted on August 29, 1991, staining of the area around the unit was observed.

SWMU #23 - WWTF Sludge Hopper

Suggested Action: No RFI is recommended.

Reason: The unit has no known history of release, has a low release potential, is situated on a concrete pad and contains sludges that have been classified non-hazardous. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #24 - Old Bone Yard

Suggested Action: RFI is recommended.

Reason: There have been no known release from this unit. However, the nature of the prior waste management operations at the unit could not be determined during the VSI conducted on August 29, 1991. Also, this unit did not have release controls.

SWMU #25 - Drum Staging Area #1

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential and is located on a concrete pad. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #26 - Drum Storage Area

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential and is located on a concrete pad. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #27 - Drum Staging Area #2

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential and is located on a concrete pad. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #28 - Sewer Effluent Sump

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release and a low release potential. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #29 - Sewer Effluent Sump at Treatment Pits

Suggested Action: RFI is recommended.

Reason: There has been no confirmed release from this unit. However, during the VSI conducted on August 29, 1991, staining of the area around the unit was observed.

SWMU #30 - Container Storage Outside Laboratory

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential and is located on a concrete pad. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

SWMU #31 - Container Storage Outside Process Areas

Suggested Action: No RFI is recommended.

Reason: This unit has no known history of release, a low release potential and is located on a concrete pad. No visual evidence of release was observed during the VSI conducted on August 29, 1991.

8.0 REFERENCES

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2. Letter, From: Jeffry Civins, Vinson & Elkins Attorneys at Law. To: Jerry Thurman, (6AW-AG), USEPA Region VI, Re: Magna Corporation, 2434 Holmes Road, Houston, Texas 77051, EPA ID# TXD000807875, July 27, 1984.
3. Resources Engineering Inc., April 1985. Certification of Closure of Equalization Basin, Holmes Road Plant, Houston, Texas, for Magna Corporation, 8 p.
4. Interoffice Memorandum, From: R. Finden, Plant Manager, Magna Corporation, To: All Managers and Supervisors, Re: Waste Management Policy, October 20, 1983.
5. Letter, From: Carlos Stennett, Environmental Affairs Specialist, Magna Corporation, To: Dave Olschewsky, Enforcement Division, USEPA Region VI, Re: Request for Modification of Interim Status Part A Application #TXD000807875. Planned Improvements to Aqueous Waste Treatment System, November 8, 1981.
6. Texas Department of Water Resources - Notice of Registration, Industrial Solid Waste Generation/Disposal, Chardonol Corporation, Solid Waste Registration Number 30594, January 7, 1985.
7. Letter, From: Carlos A. Stennett, Environmental Regulations Specialist, Magna Corporation, To: Charles E. Nemir, Executive Director, Texas Department of Water Resources, Re: Magna Corporation Houston, Texas Manufacturing Plant, TDWR No. 30594, EPA ID# TXD000807875, January 3, 1984.
8. Letter, From: G.C. McDonald, Environmental Specialist, Magna Corporation, To: Jim B. Hibb, Solid Waste Branch, Texas Department of Water Resources, Re: Industrial Solid Waste Inventory, January 13, 1978.
9. Interoffice Memorandum, From: Clarence E. Johnson, Field Representative, Texas Department of Water Resources, To: Bryan Dixon, Chief, Solid Waste & Spill Response, Re: Magna Corporation, Registration No. 30594, September 17, 1984.
10. Chardonol Corporation, Closure Plan Houston Manufacturing Plant, 2434 Holmes Road, Houston, Texas 77051. EPA ID# TXD000807875, September 25, 1984, 12 p.

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12. Groundwater Technology Inc. Report of Feasibility Study Groundwater Monitoring Program Status, Existing Fish Pond, Magna Corporation, Houston, Texas, Job Number 81-11E, November 19, 1981.
13. Letter, From: Carlos Stennett, Environmental Regulations Specialist, Magna Corporation, To: Jay Snow, P.E., Chief, Solid Waste Section, Texas Department of Water Resources, Re: Sludge Waste Reclassification Request to Classify for One Time Disposal, November 2, 1983.
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17. Climatic Atlas of the United States, 1983, U.S. Department of Commerce, 80 p.
18. Texas Department of Water Resources, 1962. Drainage Areas of Texas Streams, San Jacinto River Basin and San Jacinto-Brazos Coastal Area, Circular 62-05, 11 p.
19. Magna Corporation, 1983, Closure Plan, Magna Corporation, 2434 Holmes Road, Houston, Texas 77051, EPA ID# TXD000807875, November 22, 1983. Enclosed in Letter, From: G.C. McDonald, Regulatory Affairs Manager, Magna Corporation, To: Charles E. Nemir, Executive Director, Texas Department of Water Resources, Re: Magna Corporation, November 22, 1983.
20. Texas Water Commission, 1987, Comprehensive GW Monitoring Evaluation (CME) Report, Magna Corporation - Baker Performance Chemicals, Inc. 2434 Holmes Road, Houston, Texas 77051. TWC Reg. No. 30594, February 20, 1987.
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34. Industrial Solid Waste Compliance Monitoring Inspection Report, Tanks Checklist, Texas Department of Water Resources, SWR No. 30594, February 12, 1982.
35. Visual Site Inspection Field Notes, Magna/Chardonol/CC&P Facility, Houston Plant, August 29, 1991 and September 20, 1991. Field notes by inspectors Mr. Philip Winsborough, Mr. Mark Guarisco, and Mr. Larry Basilio, HALLIBURTON NUS Environmental Corporation, Houston, Texas.

APPENDIX A
SUMMARY VSI TRIP REPORT
AND PHOTOGRAPHS

SUMMARY VSI TRIP REPORT

An opening meeting was held with Cook Composites and Plastics (CC&P) representatives at 7:00 a.m. on August 29, 1991 at the CC&P Plant in Houston, Texas, to discuss the Visual Site Inspection (VSI) planned for the facility. This introductory meeting lasted approximately one and one-half hours. Philip Winsborough, the HALLIBURTON NUS field team leader, explained the purpose of the VSI and the planned itinerary. CC&P representatives discussed with the HALLIBURTON NUS inspection team the history of the facility, which is located at a continuously producing chemical plant under different owners, but producing the same or similar products and including historical and current operational procedures and waste management practices that have occurred at the facility since its construction began in the 1950s. During this discussion it was confirmed that the CC&P facility consists of two contiguous areas, one of which is still owned by Magna.

The VSI was conducted on August 29, 1991. The following individuals were present for all or part of the one-day visit.

<u>Name</u>	<u>Representative of:</u>
Philip Winsborough	HALLIBURTON NUS
Mark Guarisco	HALLIBURTON NUS
Larry Basilio	HALLIBURTON NUS
Robert Finden	CC&P Corporation
Charles Earhart	CC&P Corporation

Following the morning meeting on August 29, the CC&P Vice President for Manufacturing, Robert Finden, and Charles Earhart, lead the field team through the CC&P plant area, and the Magna Corporation closed Wastewater Impoundment (SWMU #1). The field team identified and inspected SWMUs in both of these two areas. The day's site visit ended at approximately 2:00 p.m. The weather was hazy and sunny, very humid, with temperatures ranging from the high 70's in the early morning to a high in the 90's in the afternoon.

At approximately 1:15 p.m., Philip Winsborough conducted a short out-briefing meeting for the CC&P team and the field team left the site about 2:00 p.m.

During the next week, several phone conversations were conducted to confirm and clarify information obtained during the site tours.

Another brief visit occurred on Monday, September 20, 1991, from 1:00 to 3:00 p.m. to revisit and clarify the configuration of the process and storm water sump and drain systems.

The photographs and comments on the following pages indicate some of the information obtained during the VSI.

PHOTO LOG



1. Magna/Chardonol/CC&P Facility, 8/29/91, 7:00 to 2:00. View to the northeast. View of the area where the Wastewater Impoundment (SWMU #1) was located. This area has been seeded and covered with grass.



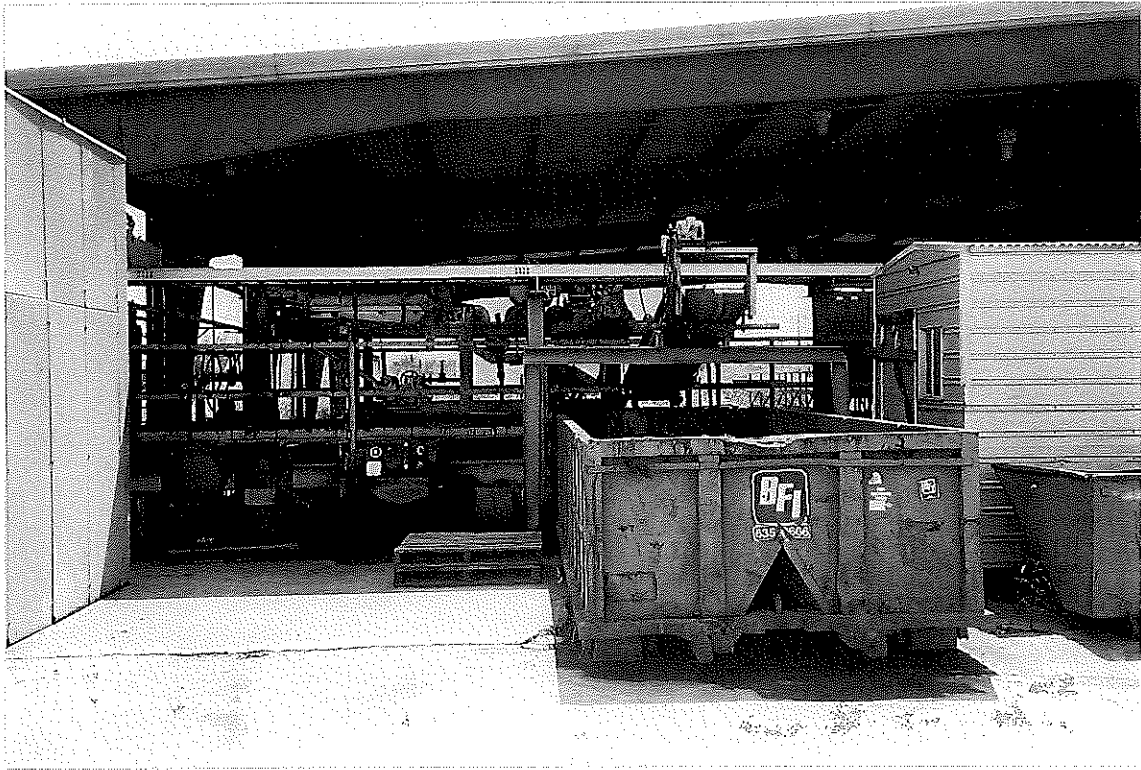
2. Magna/Chardonol/CC&P Facility, 8/29/91, 7:00 to 2:00. View to the southeast. View of the vicinity where the Black Tar Area (SWMU #2) was located.



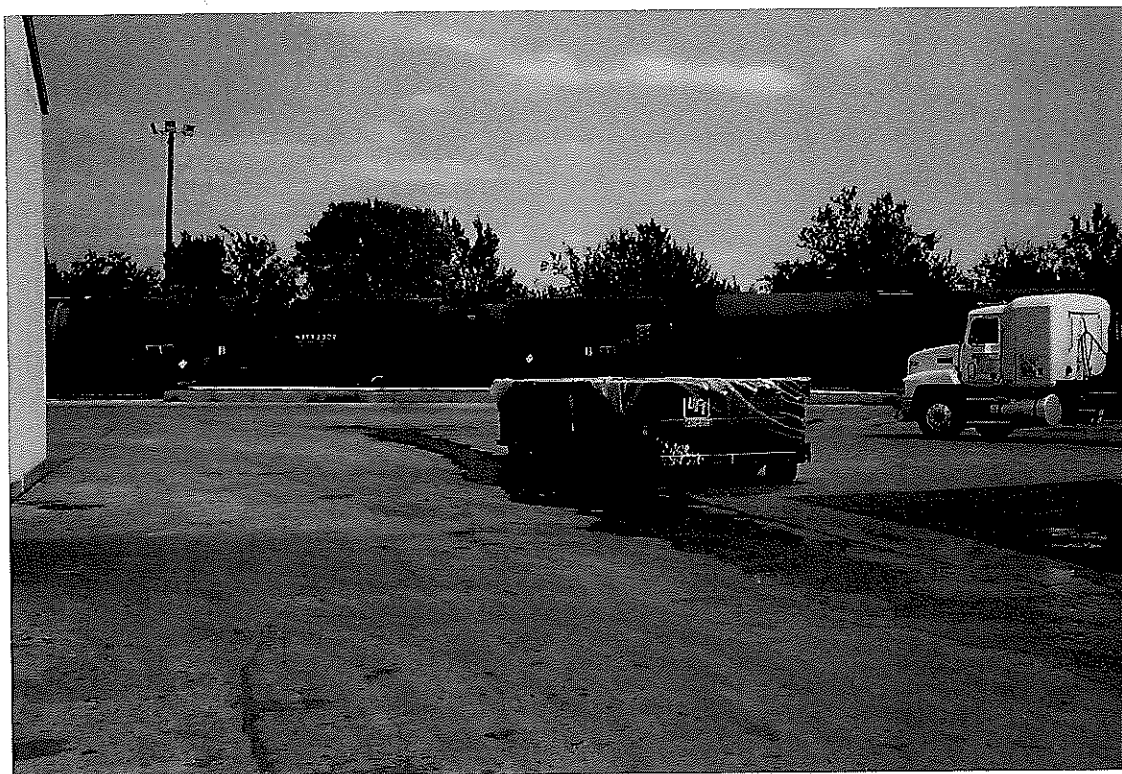
3. Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the south. View of the Wastewater Collection Sump (SWMU #3). Rain water has collected adjacent to the unit. The sump is composed of two cells which are separated by a four inch concrete wall. This unit was used to separate oily wastewaters. Oils were removed using a rope and belt skimmer. Oils removed from the wastewater were then stored in the adjacent Skimmed Oil Storage Tank (SWMU #4).



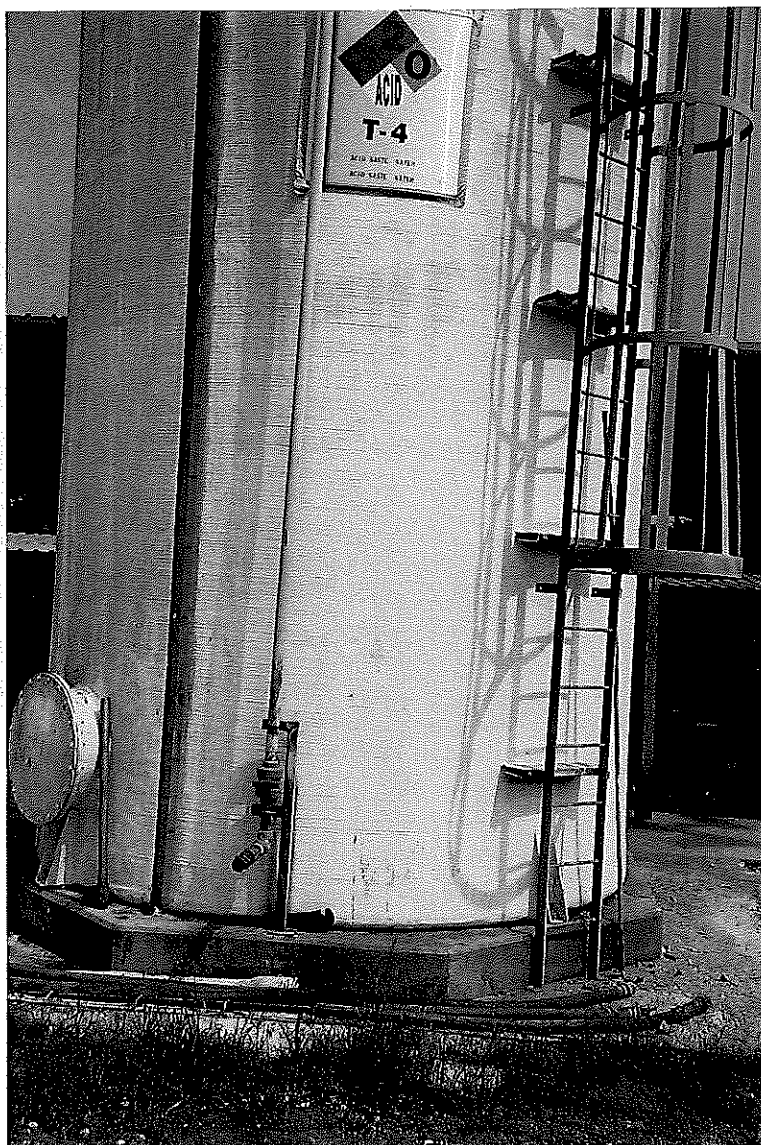
4. Magna/Chardonol/CC&P Facility, 8/29/91, 7:00 to 2:00. View to the northeast. View of the currently inactive Skimmed Oil Storage Tank (SWMU #4). This unit along with Wastewater Collection Sump (SWMU #3), was used to store waste oils collected from process wastewaters.



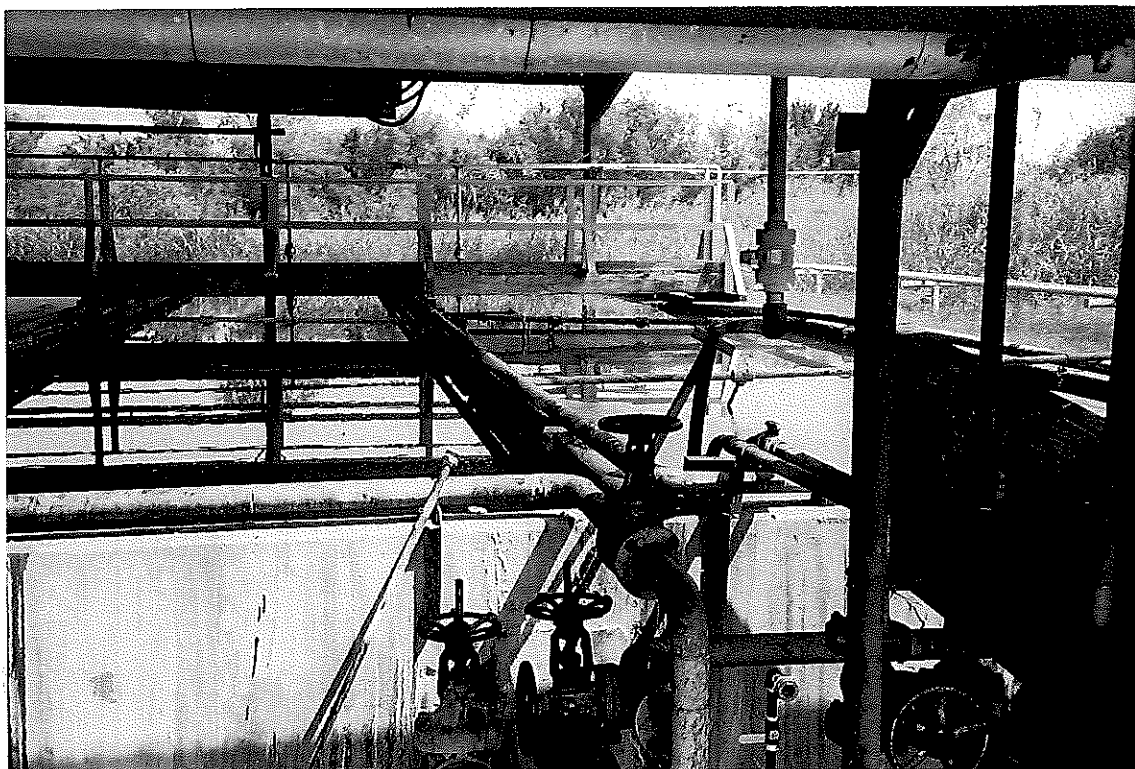
5. Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the south. View of Old Drum Storage Area at WWTF (SWMU #5). This area is now occupied by the WTP Sludge Hopper (SWMU #23).



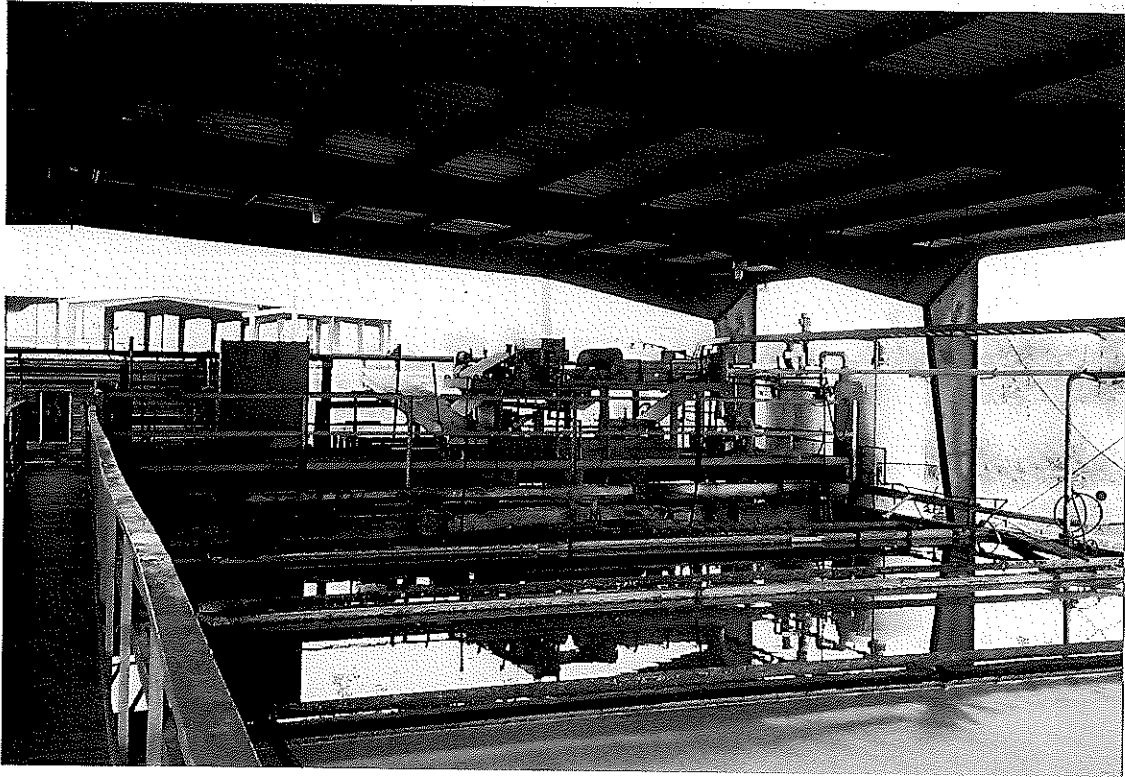
6. Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the east. View of Dumpster for Filter Press Cake (SWMU #6). The liquid seen in this photo is not associated with the unit.



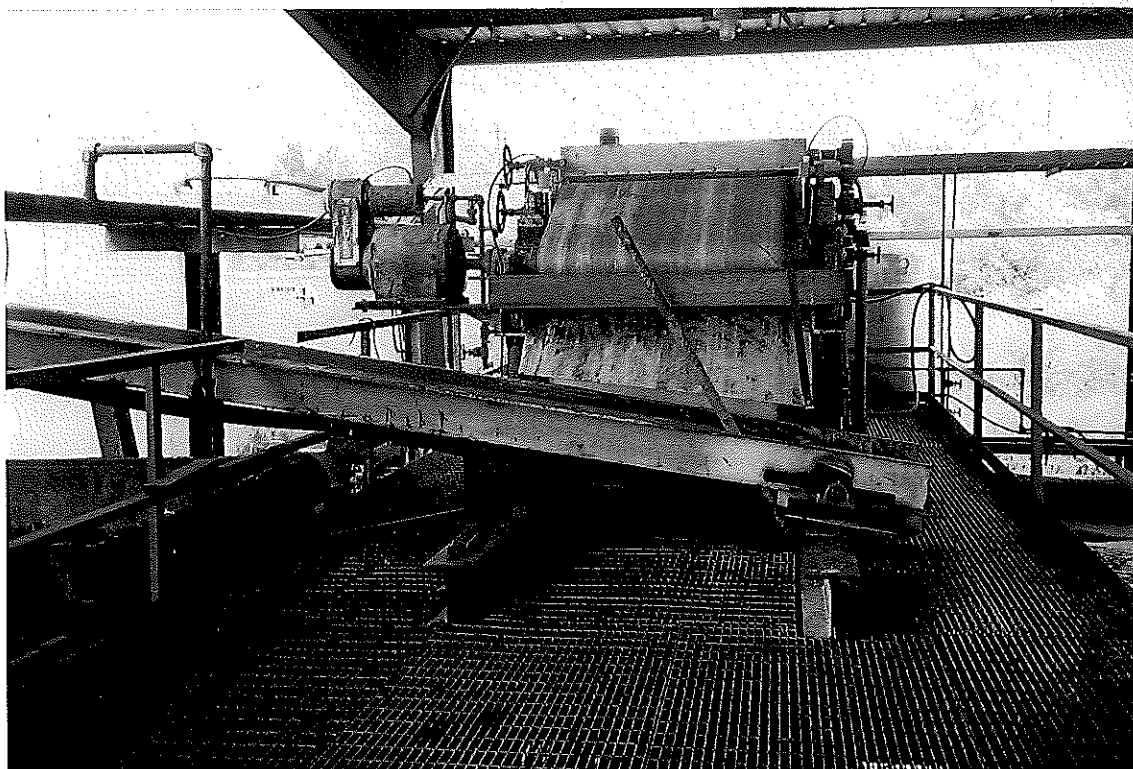
7. Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the east. View of Wastewater Holding Tank (SWMU #7). This 6000-gallon tank, which was constructed in 1981 to hold chemical materials used in the adjacent Treatment Pits (SWMU #8), is now used to store non-hazardous wastewaters prior to introduction into the Treatment Pits (SWMU #8). This tank was active at the time of the VSI.



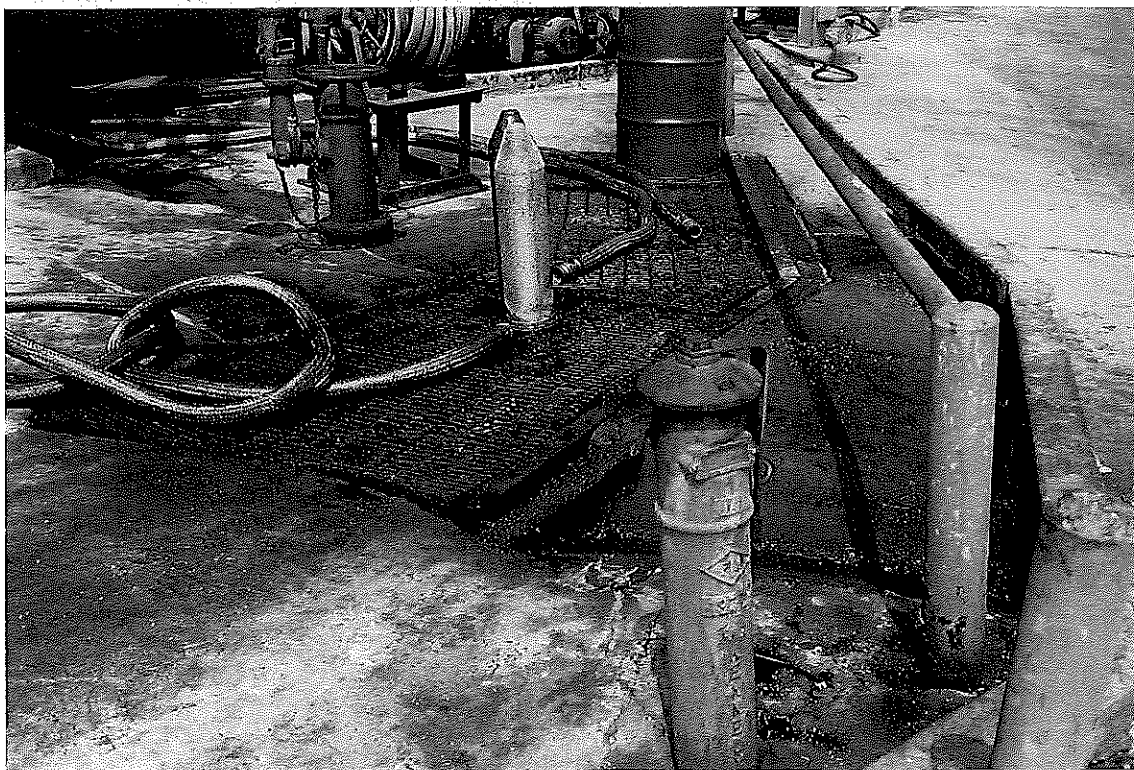
8. Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the east. View of the Treatment Pits (SWMU #8). This SWMU consists of seven rectangular concrete pits situated beneath an open sided structure. Catwalk (with yellow handrails) runs perpendicular to the length of the pits. Wastewater in these pits is subject to a flocculation process which represents the final stage in the on-site wastewater treatment prior to discharge to a POTW.



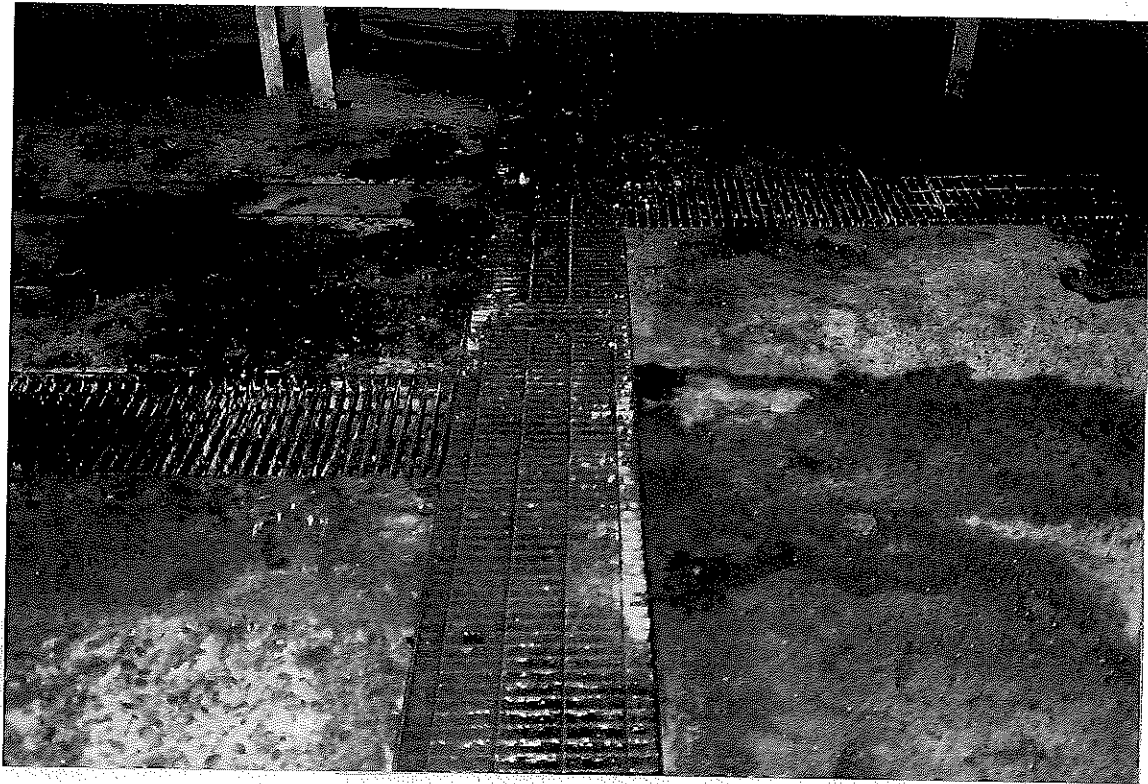
8.1 Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the north. View of the Treatment Pits (SWMU #8) from the catwalk. Note the Sludge Dewatering Belt Press (SWMU #9) in background.



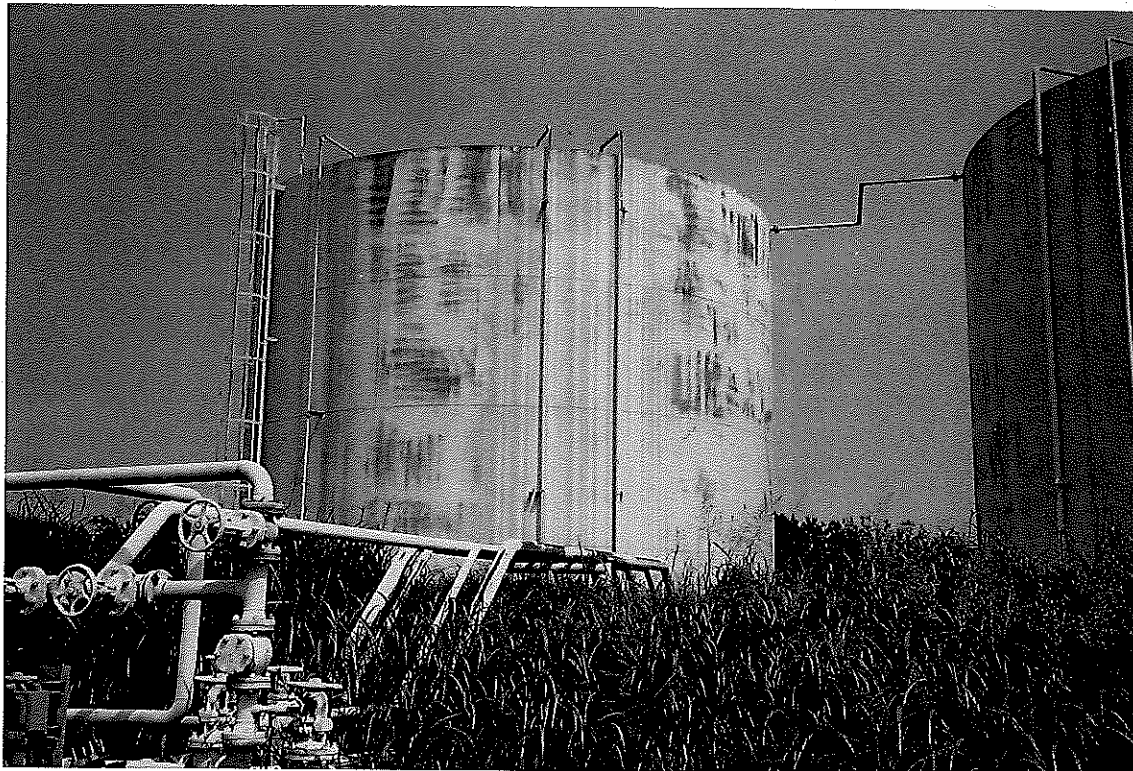
9. Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the east. View of the Sludge Dewatering Belt Press (SWMU #9). This unit mechanically dewateres sludges resulting from the flocculation process conducted at the Treatment Pits (SWMU #8).



10. Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the northwest. View of a typical exterior example of the WWTF Piping/Chemical Sewer Conduits (SWMU #10). This extensive system of conduits collects process wastes from production and storage units located throughout the facility.



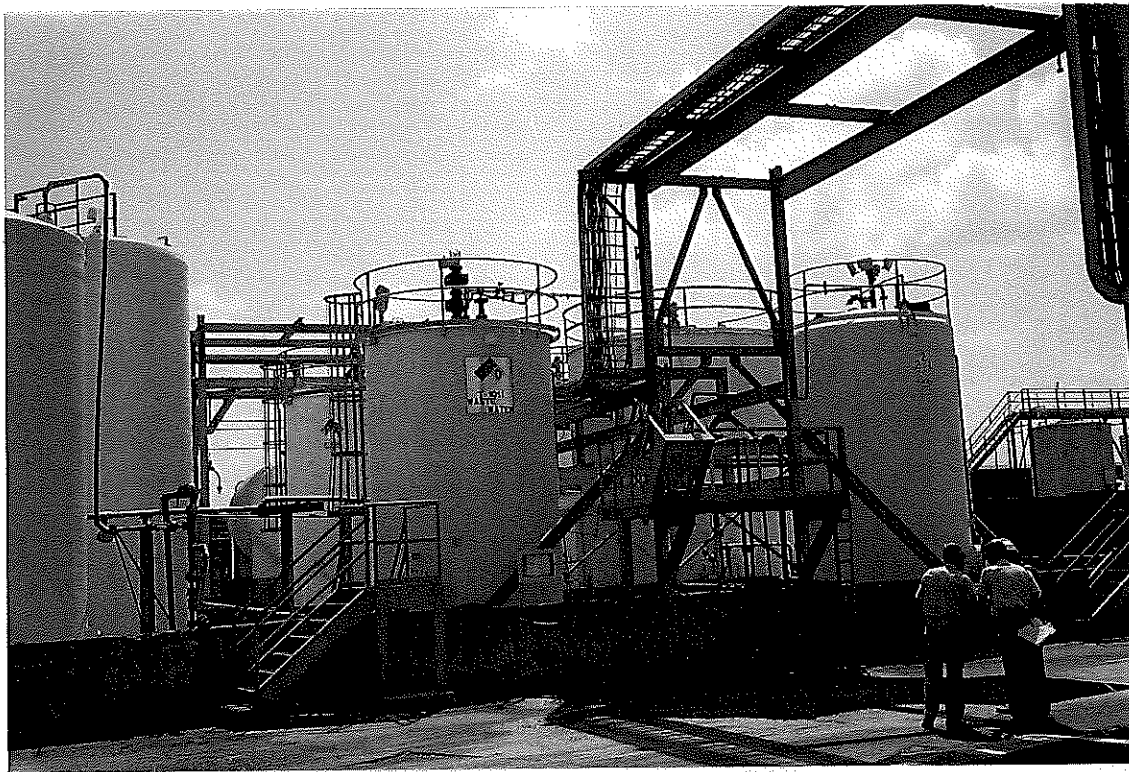
10.1 Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the south. View of a typical interior example of the WWTF Piping/Chemical Sewer Conduits (SWMU #10). This sewer is located in the ester kettle building.



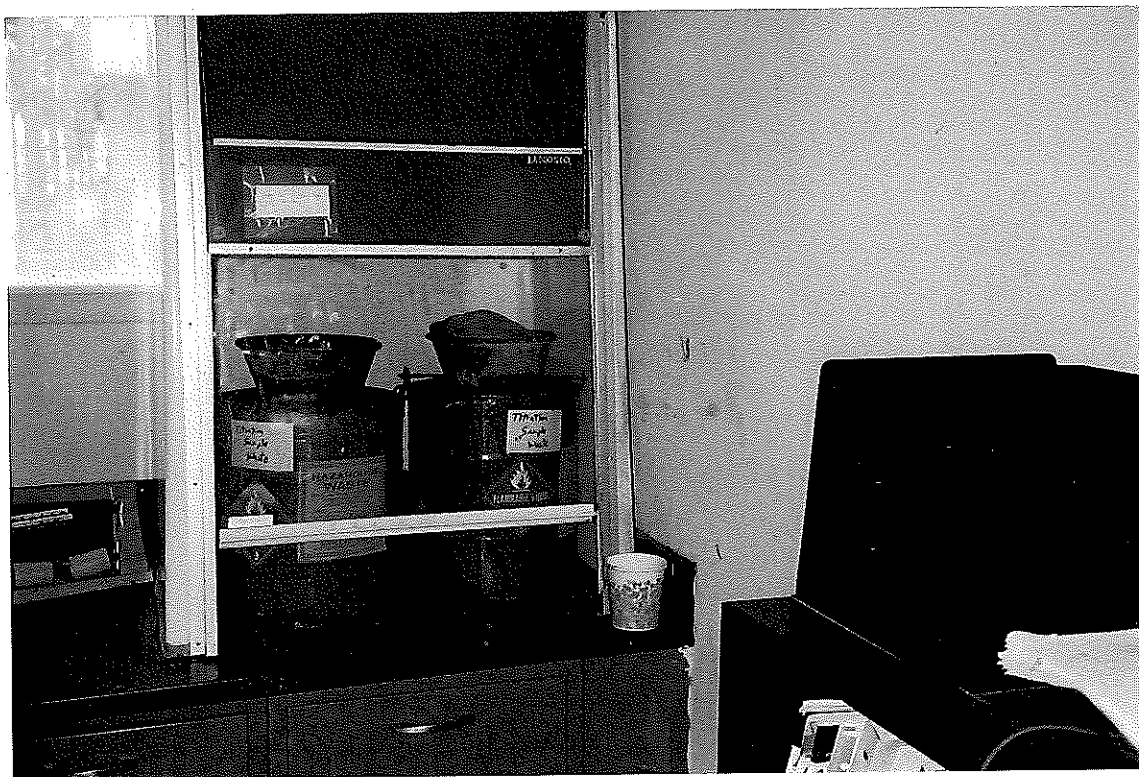
11. Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the northeast. View of the WWTF Enclosed Tank #1 (SWMU #11). WWTF Enclosed Tank #2 (SWMU #12) is located in the extreme right. This 250,000-gallon tank stores process wastewaters from the facility prior to treatment in the on-site wastewater treatment facility. Only one tank is in use at any given time; the second tank is kept in reserve as an emergency backup unit.



12. Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the east. View of the WWTF Enclosed Tank #2 (SWMU #12). WWTF Enclosed Tank #1 (SWMU #11) is located to the left. This 250,000-gallon tank stores process wastewaters from the facility prior to treatment in the on-site wastewater treatment facility. Only one tank is in use at any given time; the second tank is kept in reserve as an emergency backup unit.

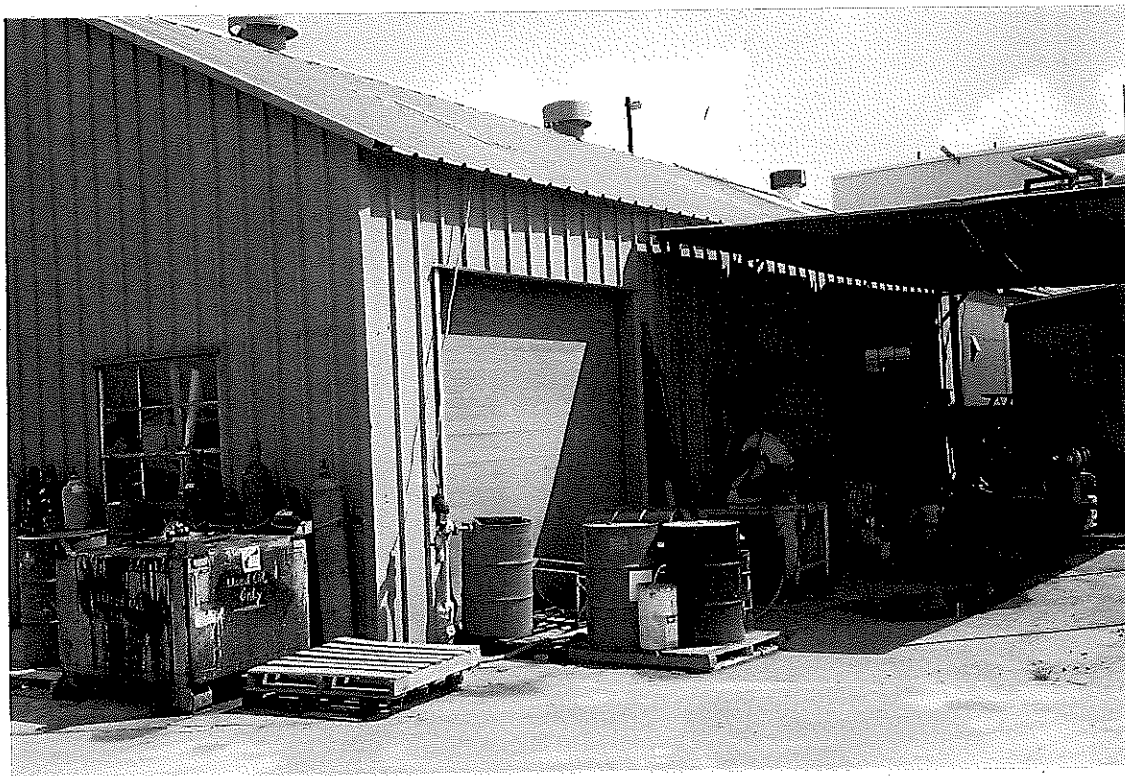


13. Magna/Chardonol/CC&P Facility, 8/29/91, 7:00 to 2:00. View to the east. View of the T-1011 Waste Storage Tank (SWMU #13). This 8,700-gallon tank is used to store process wastewaters. The tank is situated on a concrete pad and surrounded by a four foot concrete revetment wall. The other tanks in the photograph are product tanks. Photograph taken from the acrylic acid polymerization unit.

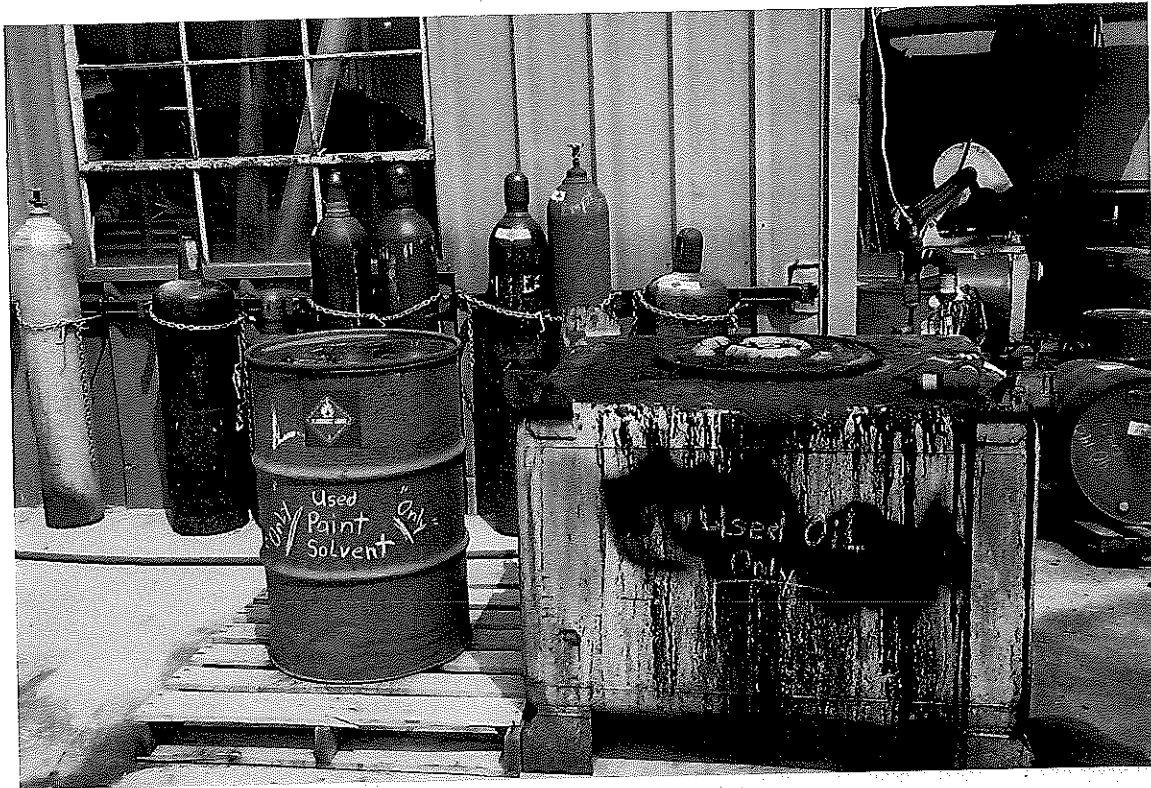


14. Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the south. View of the Waste Storage Area in Laboratory (SWMU #14). Wastes are stored in several locations at the laboratory. This is an example of management practices used in the facility's QA/QC laboratory.

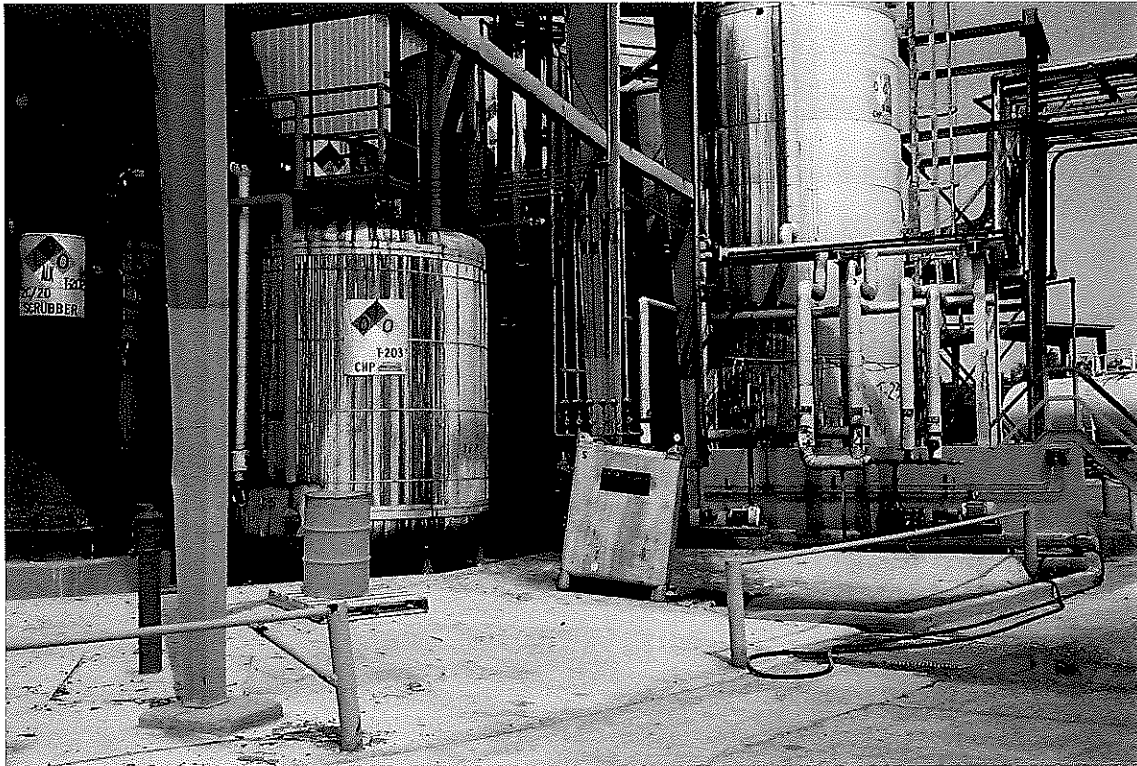
15. No photo of Waste Storage Area in Maintenance Shop (SWMU #15) was taken. This unit was identified after the VSI.



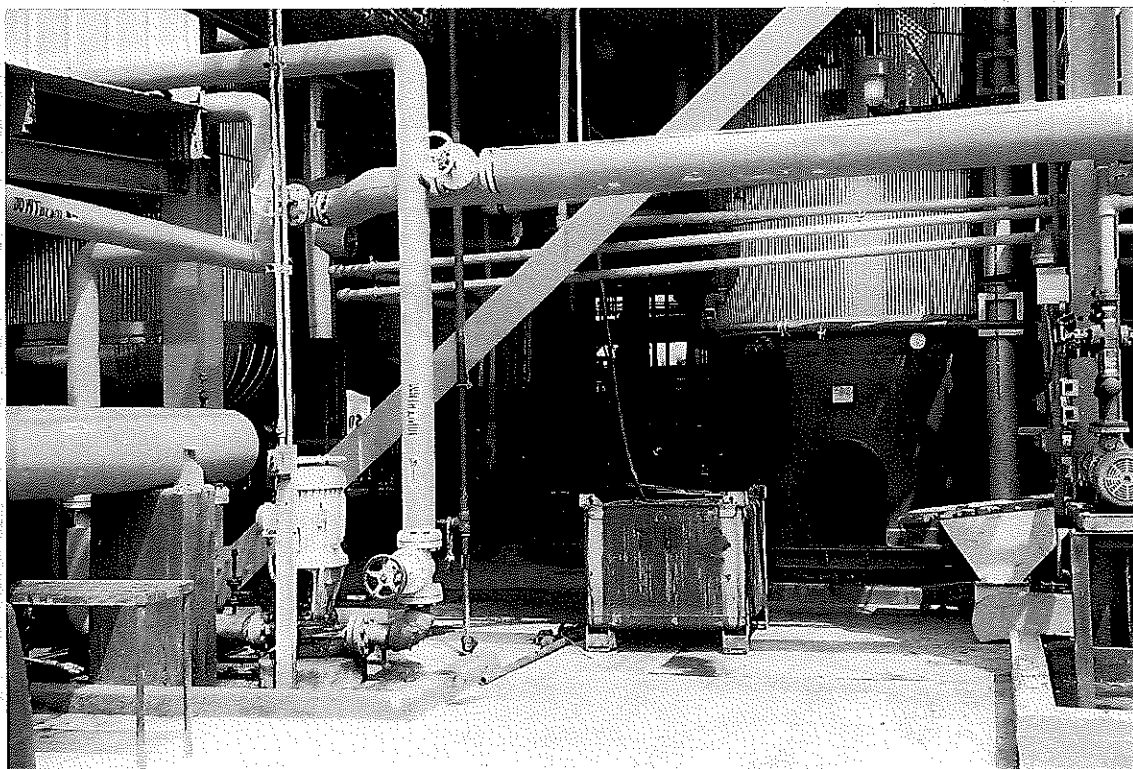
16. Magna/Chardonol/CC&P Facility, 8/29/91, 7:00 to 2:00. View to the northeast. View of the Container Storage Outside Maintenance Shop (SWMU #16). Used oils and cleaning chemicals are stored outside the shop on a concrete surface. This unit receives waste from Waste Storage Area in Maintenance Shop (SWMU #15). Puddles resulting from recent rains are evident in the background of the photograph.



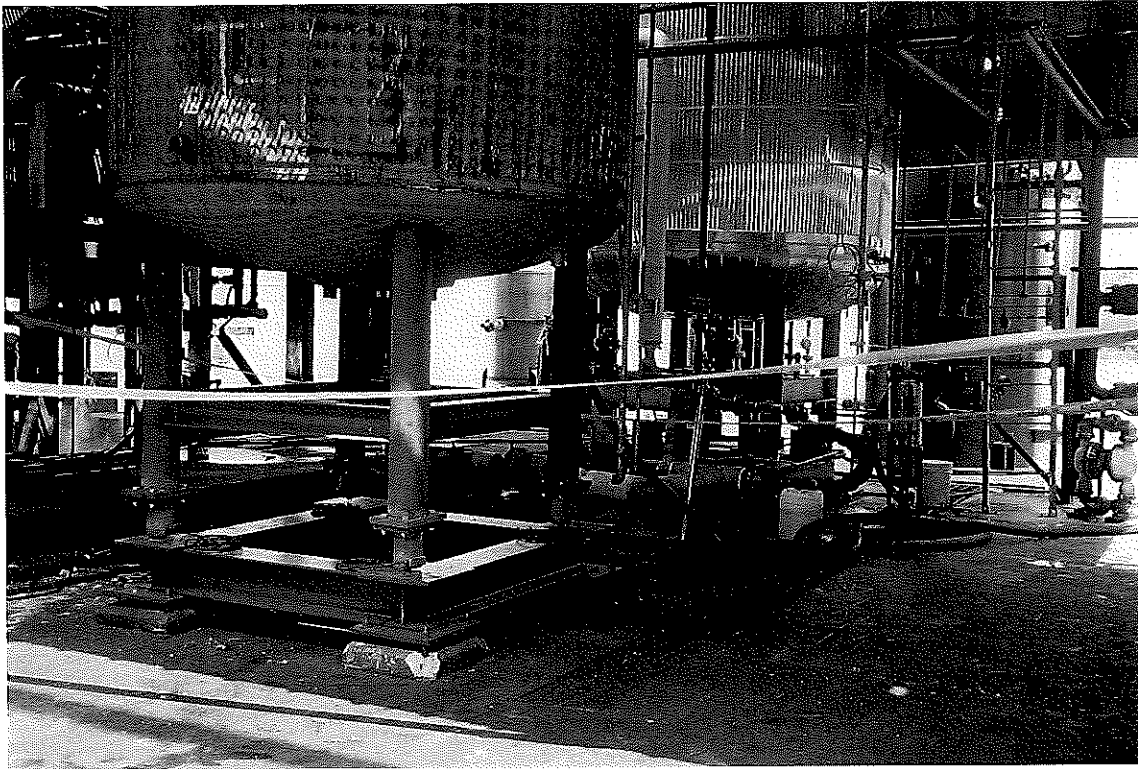
16.1 Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the east. View of the Container Storage Outside Maintenance Shop (SWMU #16). This photograph provides a detailed view of waste oil and solvent waste management containers.



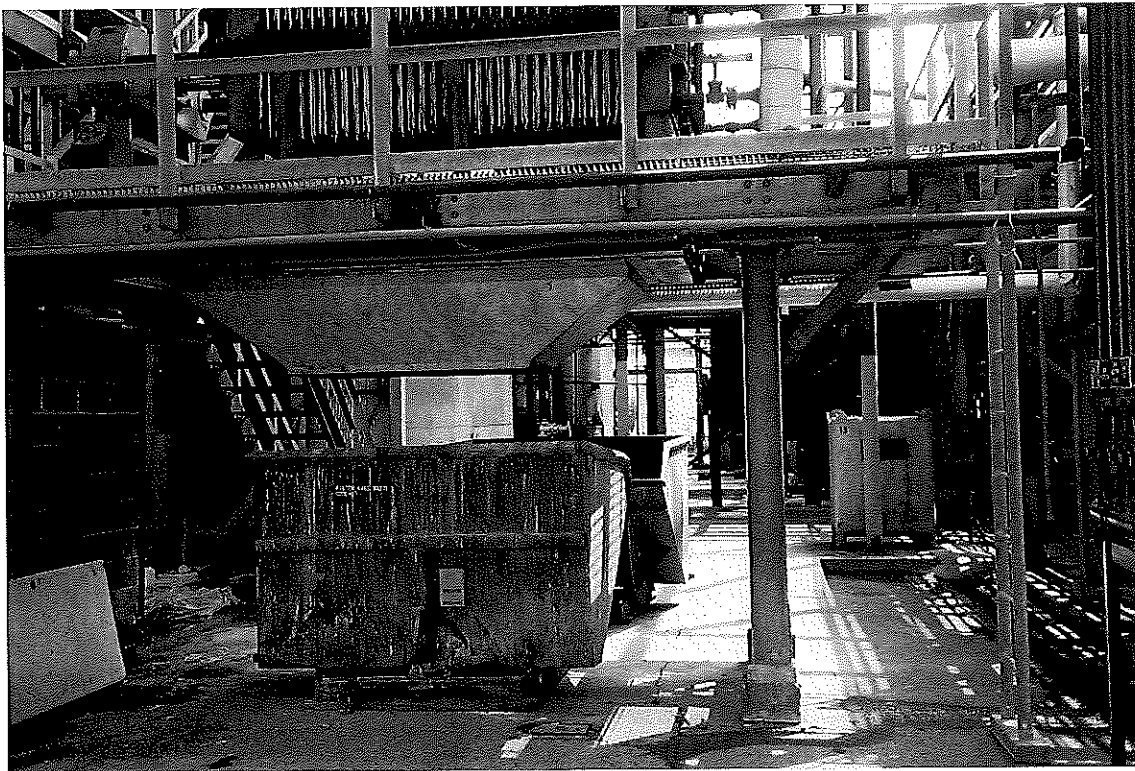
17. Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the east. View of the Tote Bins at Autoclave Units (SWMU #17).



18. Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the east. View of the Tote Bins at Ester Kettle Unit 1B (SWMU #18). This is an example of one of the units used to collect process wastes resulting from the esterification and sulfonation of unsaturated polyester resins.

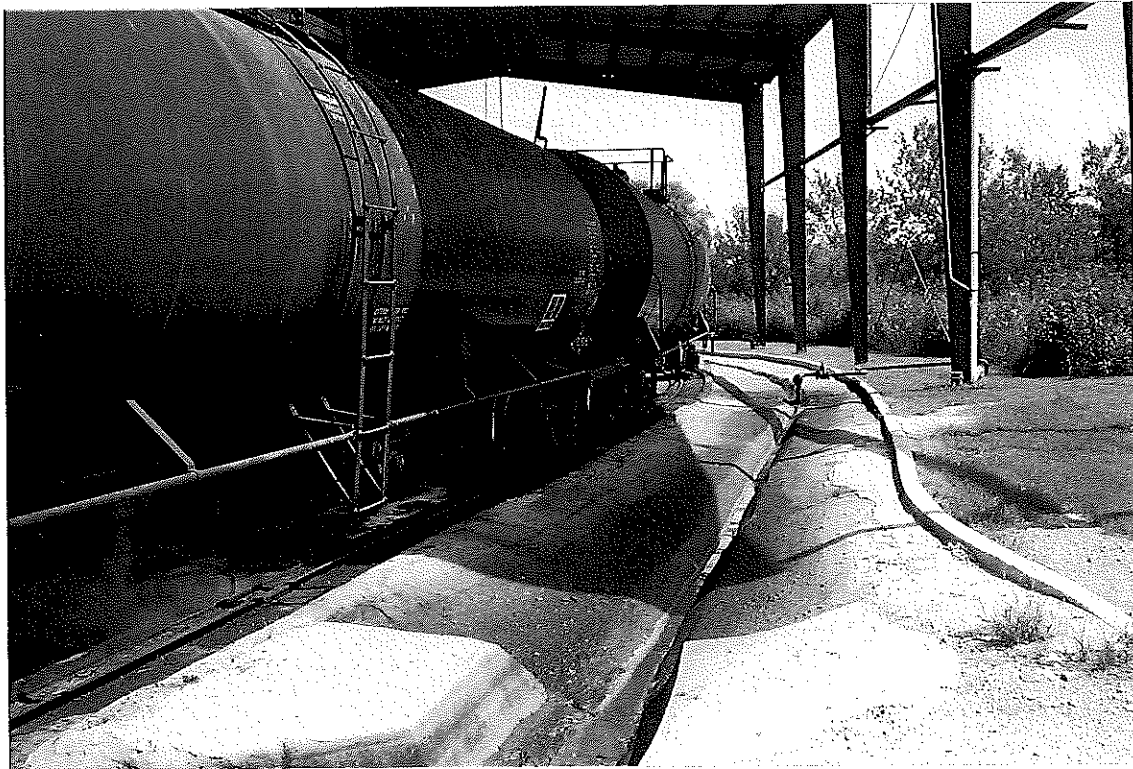


19. Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the northeast. View of the Waste Storage Area at Glass Lined Unit (SWMU #19). The 5-gallon carboys seen in this photo are periodically taken to tote bins located nearby.



20. Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the south. View of the Dumpsters at Glass Lined Unit (SWMU #20). These dumpsters receive non-hazardous process wastes from the Glass Lined Unit.

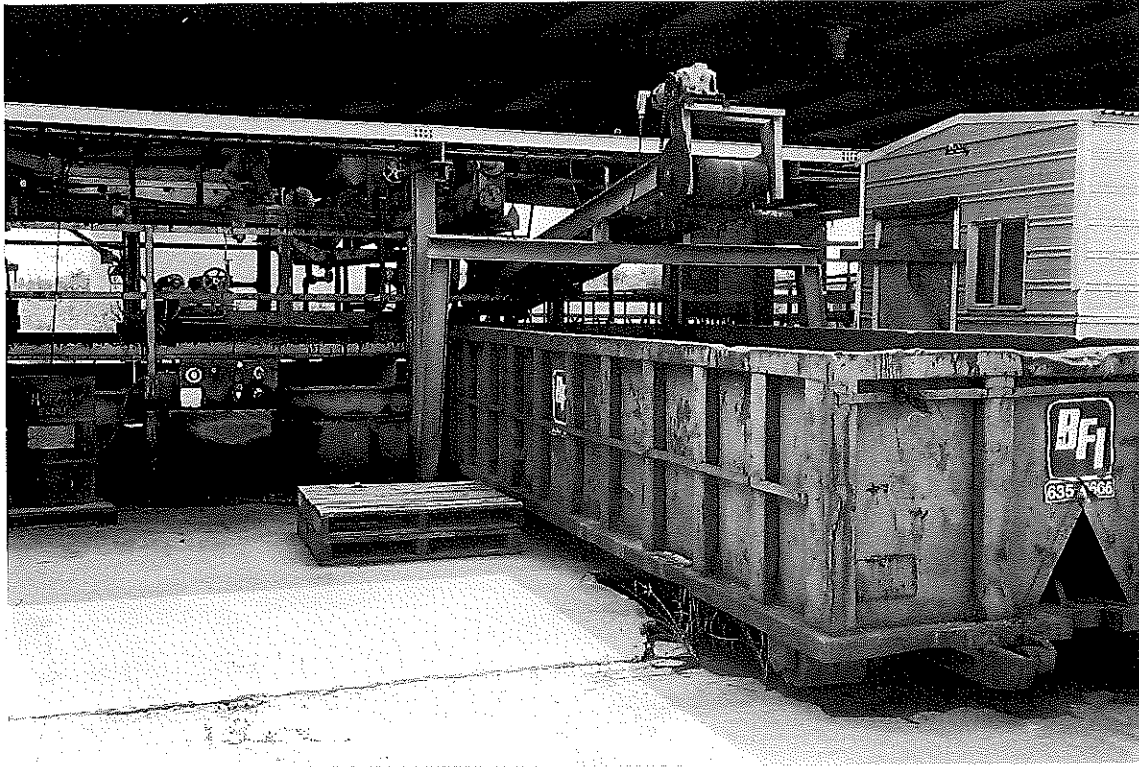
21. No photograph of Tote Bins at Finished Compound Blending Unit (SWMU #21) was taken. This unit was identified after the VSI.



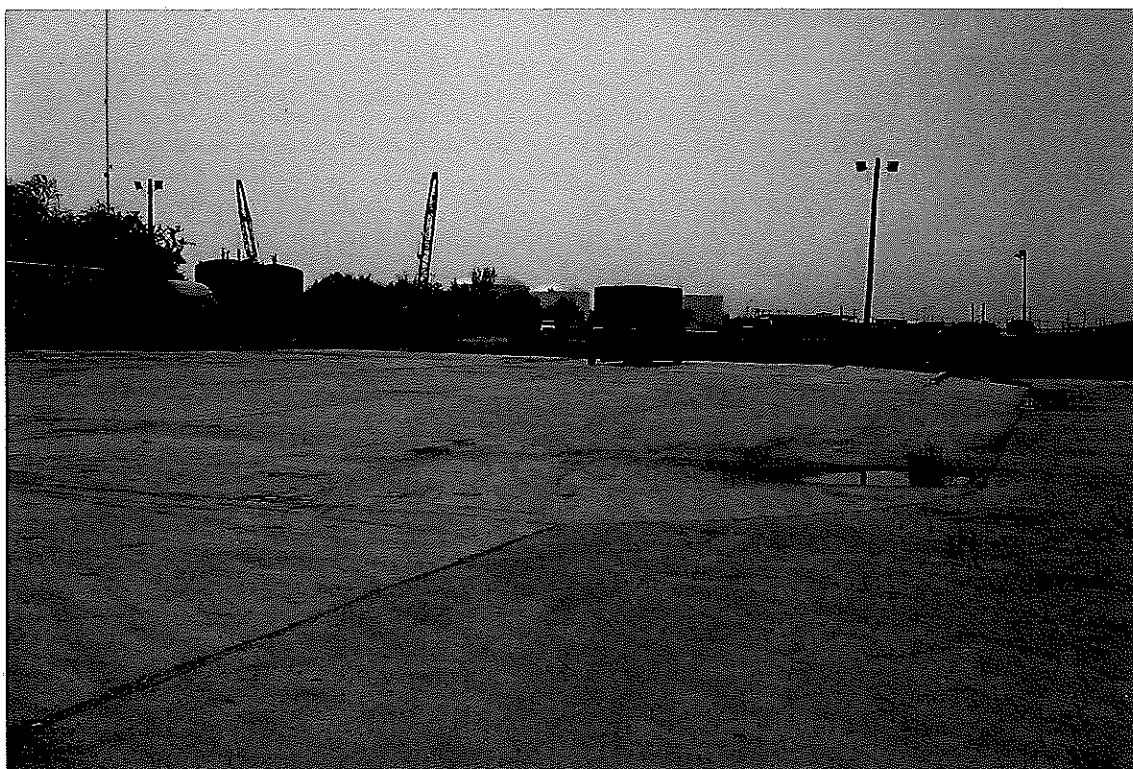
22. Magna/Chardonol/CC&P Facility, 8/29/91, 7:00 to 2:00. View to the north. View of the Metal Catch Trays at Tank Car Railside (SWMU #22). The metal catch trays are visible beneath the rail cars and are intended to collect drippings and spillage from car valves and couplings. These trays in turn empty into the concrete catchment system seen in the center right portion of this photograph. Note that both the trays and concrete catchment systems appear to contain liquids and are noticeably discolored.



23. Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the north. View of the WTP Sludge Hopper (SWMU #23). SWMU #23 consists of an open topped metal hopper which is used to contain dried sludge produced by the Sludge Dewatering Belt Press (SWMU #9). The sludge is temporarily stored here prior to off-site disposal. This photograph shows the conveyer that links the Belt Press with WTP Sludge Hopper (SWMU #23).



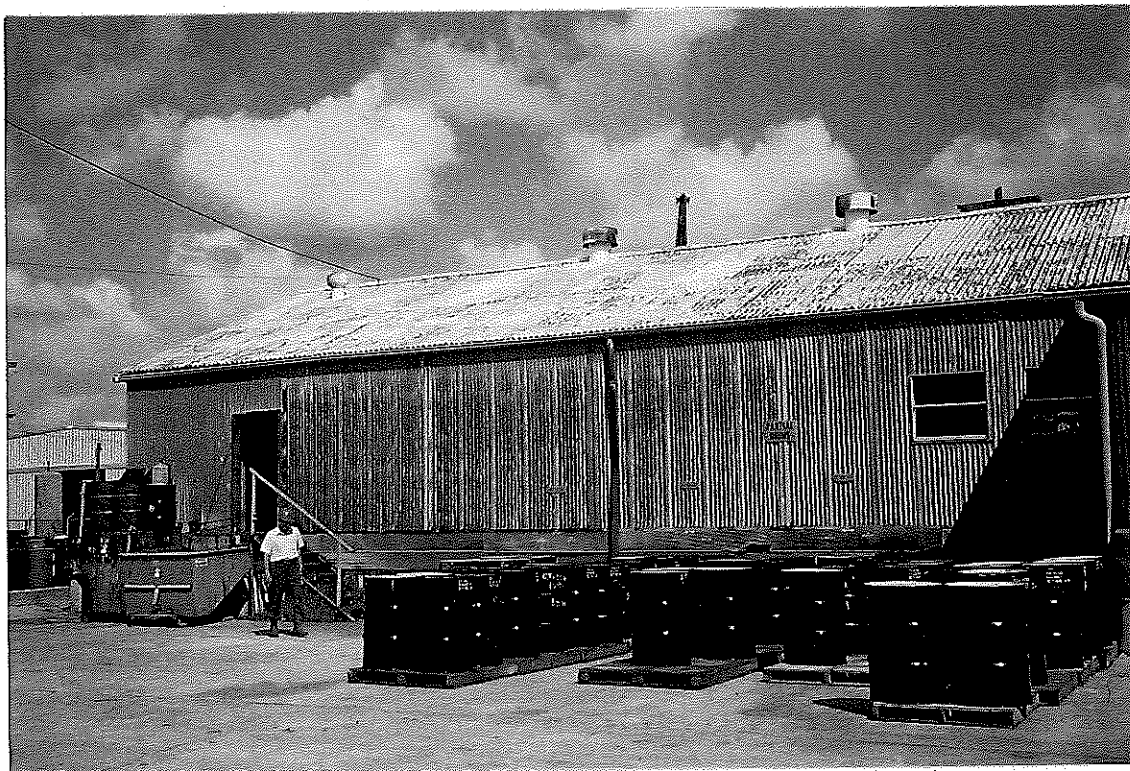
23.1 Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the south. View of the WWTF Sludge Hopper (SWMU #23). This photograph shows the associated Sludge Dewatering Belt Press (SWMU #9). The Treatment Pits (SWMU #8) are also located beneath the open sided structure seen in the background.



24. Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the west. View of the Old Bone Yard (SWMU #24). The Old Bone Yard (SWMU #24) used to serve as the plant's landfill and was used to manage non-hazardous trash, debris and crushed drums from the 1950's to 1980. The landfill was closed and material removed in 1980. The site is the current location of the Drum Staging Area #2 (SWMU #27).



25. Magna/Chardonol/CC&P Facility, 8/29/91, 7:00 to 2:00. View to the north. View of the Drum Staging Area #1 (SWMU #25). This area is utilized to store pallets of 55-gallon drums containing non-hazardous wastes for short periods of time (not more than two weeks) prior to being taken off-site.



26. Magna/Chardonol/CC&P Facility, 8/29/91, 7:00 to 2:00. View to the south. View of the Drum Storage Area (SWMU #26). This area is used as a temporary storage area for 55-gallon drums containing waste product, lab wastes, and recyclable materials. The building situated behind the drums is the QA/QC Laboratory.



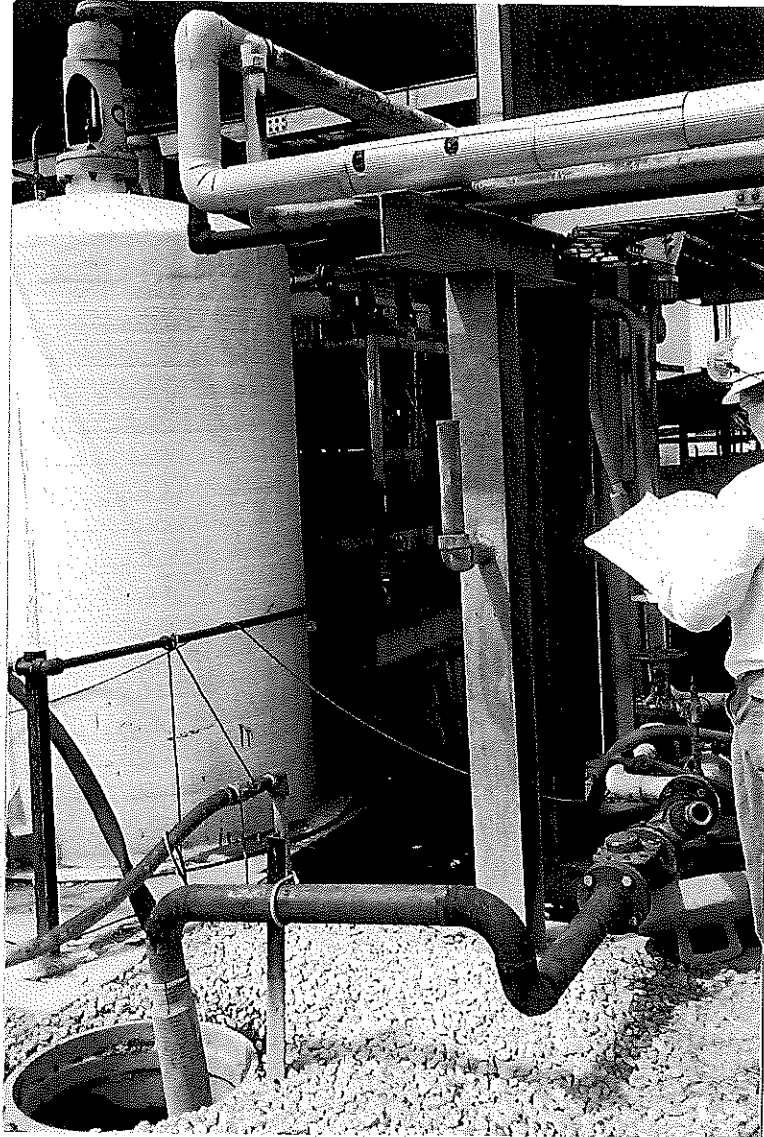
27. Magna/Chardonol/CC&P Facility, 8/29/91, 7:00 to 2:00. View to the north. View of the Drum Staging Area #2 (SWMU #27). This unit is used for the temporary storage of non-hazardous sludges and liquids in 55-gallon drums and 400-gallon tote bins. The water in the foreground is rain water.



27.1 Magna/Chardonol/CC&P Facility, 8/29/91, 7:00 to 2:00. View to the north. Additional view of the Drum Staging Area #2 (SWMU #27). This unit is used for the temporary storage of non-hazardous sludges and liquids in 55-gallon drums and 400-gallon tote bins. The puddle in the foreground is rain water.



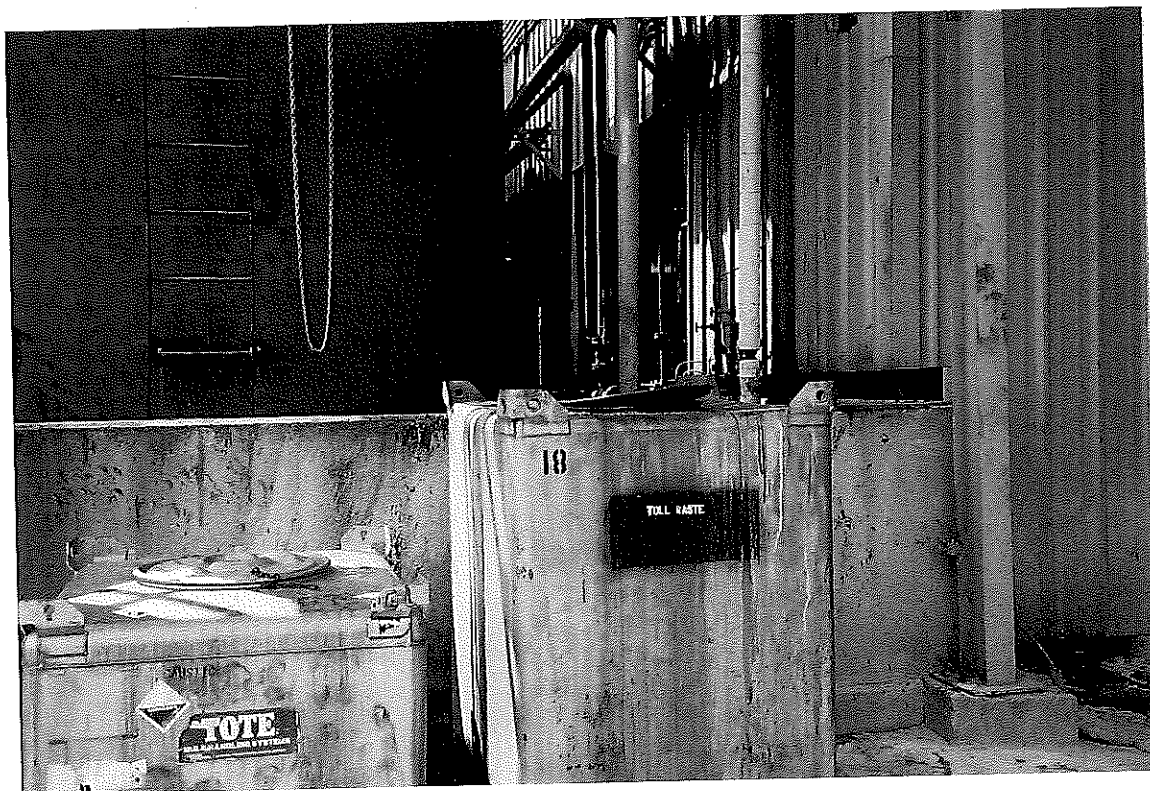
28. Magna/Chardonol/CC&P Facility, 8/29/91, 7:00 to 2:00. View to the north. View of the Sewer Effluent Sump (SWMU #28). This sump discharges pretreated effluent to a sewer connection linked to the City of Houston's POTW. A county drainage ditch is situated adjacent to the sump and lies just outside the plant's perimeter security fence.



29. Magna/Chardonol/CC&P Facility, 8/29/91, 7:00 to 2:00. View to the west. View of the Sewer Effluent Sump at Treatment Pits (SWMU #29). This unit is part of the flocculation process that is conducted in the Treatment Pits (SWMU #8).

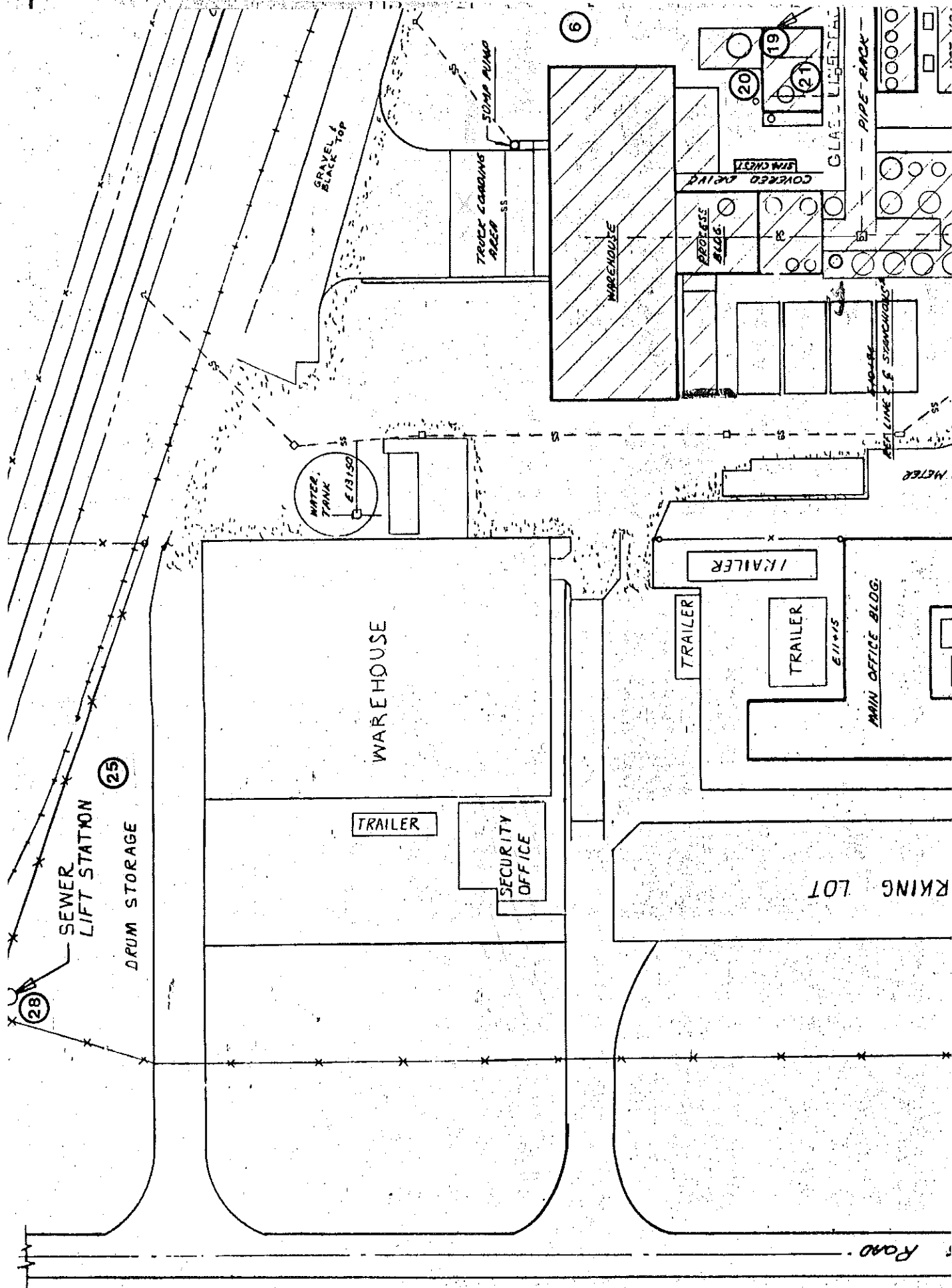


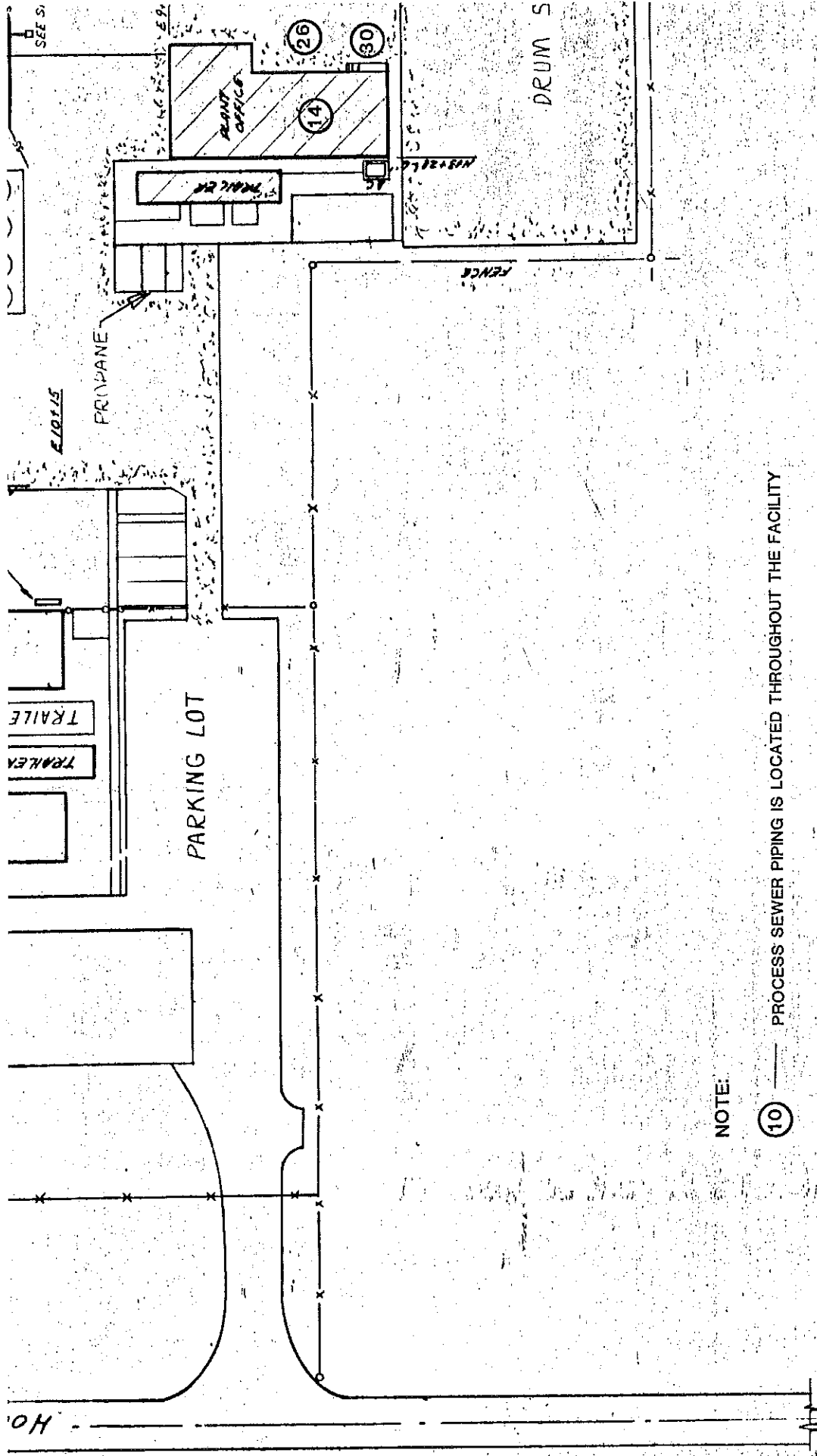
30. Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the north. View of Container Storage Outside Laboratory (SWMU #30). This photograph shows various types of containers used to contain wastes generated in the facility's QA/QC Laboratory. In addition to the tote bin, 55-gallon drums and 5-gallon sized waste containers, a green dumpster designated for non-hazardous trash is also seen.



31. Magna/Chardonol/CC&P Facility, 9/20/91, 1:40 to 3:00. View to the west. View of Container Storage Outside Process Areas (SWMU #31).

APPENDIX B
SWMU LOCATION MAP





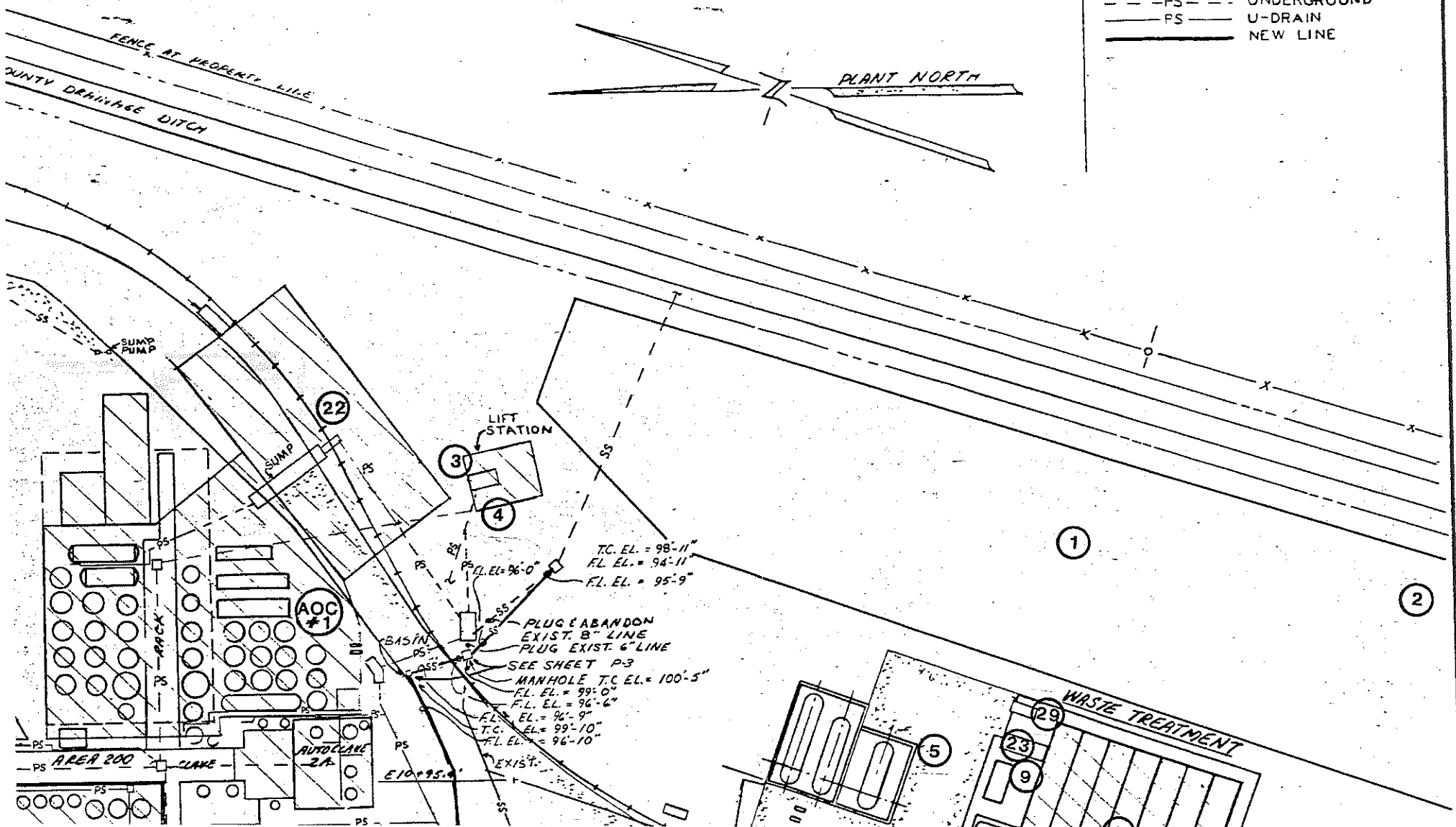


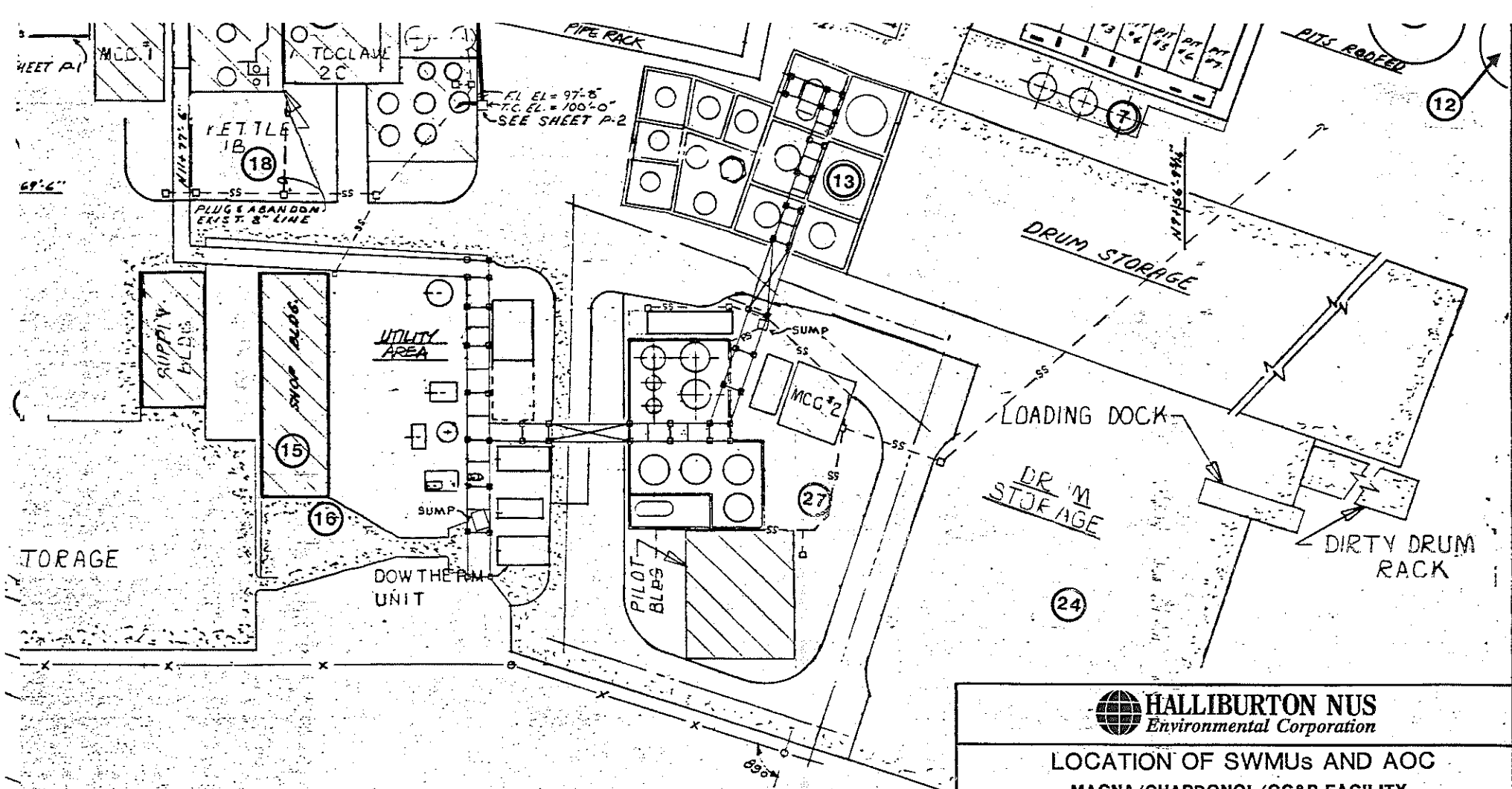
NOTE:

⑩ — PROCESS SEWER PIPING IS LOCATED THROUGHOUT THE FACILITY

LEGEND

	BUILDING
	CONCRETE PAVING
PS	PROCESS SEWER
SS	STORM SEWER
---PS---	UNDERGROUND
——PS——	U-DRAIN
————	NEW LINE





HALLIBURTON NUS
Environmental Corporation

LOCATION OF SWMUs AND AOC
MAGNA/CHARDONOL/CC&P FACILITY
HOUSTON, TEXAS

HUNT & HUNT ENGINEERING

CHARDONOL DIVISION
HOUSTON PLANT

PROPOSED STORM/PROCESS SEWER SYSTEM

REV.	DATE	BY	DESCRIPTION
1	5-18-78	S.L.	ADDED PROPOSED UTILITIES CENTER
2	11-15-79	J.D.	ADDED DOWNTOWN UNIT & KETTLE BLDG
3	17-22-81	FKH	Plot PLAN (revised)
4	3-3-87	L.H.	PROPOSED STORM PROCESS
5	11-25-87	L.H.	PROPOSED STORM DRAINAGE

SCALE: 1" = 40'

EXHIBIT B-1

Q-PL101 REV. 1